ANALYSIS OF EARNINGS TRENDS IN THE EDUCATION SECTOR IN ROMANIA

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Abstract:
The problem of human resource management in education is a big challenge for the whole world, both developing and developed countries. The existence of highly motivated teachers, appropriately qualified, adequately supported through various forms and which work in a stimulating environment for teaching and learning represent the core of any educational system. In this work, addressing human resources compensation issue is dual. First, we aim to make a qualitative analysis of the elements of an effective teachers' pay system. Secondly, we conducted a quantitative research to analyze and interpret the evolution of salaries in the education sector in Romania and to study possible correlations between these and a number of macroeconomic indicators. In order to improve results educational system it is necessary a strong and ambitious strategy of improving the motivational system and human resources compensation so as to attract and preserve the most qualified human resources in the system.

Keywords: human resource, pay, earnings, education sector

1. Introduction

Human resources compensation in the education sector is an issue that most countries facing, given that education services are usually provided by the government as a free public service. Compensation ways used in the education system express "the importance of the work and status of teachers in society" (ILO, 2012). Motivating teachers is a crucial driver in process of recruiting and retaining qualified, motivated and capable work force. Rewarding teachers must meet individual expectations, reflect professional status and the importance of responsibilities, ensure a decent living standard above average, and take into account the qualifications and experience in order to ensure equity and avoid tensions (Hdiggui, 2006).

Salary structure should also be designed without discrimination based on criteria and procedures.

All countries should provide teachers rewards to encourage total dedication to responsibilities, allowing teachers and their dependents to live decent (Kiran, 2014). To that end, wage levels should be set according to the level of national income, especially compared to professions, which require similar competencies (Anghelache, 2012). However, in many cases, "salaries in education are below average national wage or below decent living standards", less than the jobs that

necessitate similar skills and do not reflect the performance and importance of the profession in society (ILO, 2012).

In our opinion, wage levels perceived as unfair and inequitable results in a damage for reputation of profession and difficulties in recruiting and retaining best work force.

We consider that the commitment of public authorities to improve and maintain the level of education, therefore, must be paired with a commitment of politicians to grew education subsidy, given that wages are the principal component of education costs in all countries.

The paper has a structure composed of five sections. The first section made an introduction to issue approached, while the second section presents the research design. The third section conducts an exploratory theoretical research on elements of an effective teacher pay system at global level and Romania. The fourth section is devoted to a quantitative study on the evolution of salaries in the education sector in Romania, studying the correlations between them and a number of macroeconomic indicators. The last section presents conclusions and possible future developments.

2. Research design

Research axes that define the challenge addressed will be the following: analysis of elements of an effective teachers pay system both worldwide and Romania, respectively wage developments in the education sector in Romania and the correlations between them and a number of macroeconomic indicators. In addressing the first axis, we conducted a theoretical exploratory research to identify the main particular elements of the teachers' pay system both worldwide and in Romania. In the approach of the second axes we conducted a quantitative research to analyze and interpret the evolution of wages in the education sector in Romania and to study possible correlations between these and a number of macroeconomic indicators. Hypotheses from which we started in this quantitative research were the following:

H1. Net earnings level in the education sector is higher than the net earnings level for the whole economy.

H2. There are differences in the educational sector wage depending on the form of ownership of the employing institution and gender.

H3. Net earnings in the education sector is correlated with gross domestic product trends, GDP per capita trends, changes in the number of people and net earnings at total economy level employed in the education sector.

Due to our research (in which we use data from the National Statistics Institute - INS) these hypotheses will be validated or invalidated which will allow us to draw conclusions on the human resources compensation in the Romanian education sector. Also, based on the data we will make a forecast on net earnings in the education sector

3. Elements of an effective teachers' salary system

A reward system for teachers should ensure an adequate level of pay and assist the recruitment, retention and motivation process (especially those with higher qualifications).

Principles of a fair and consistent reward system for teachers must be (UNESCO, 2016):

• taking decisions concerning pay based on: qualifications, contribution, performance, within the budget;

• encourage and reward professional performance through bonuses and incentives;

• periodic wage increase in accordance with the evaluation and within budget;

• motivating staff by providing interdependence between performance and remuneration (providing along with fixed salary of a mobile salary like merit salary or merit gradation).

Remuneration is the central component of the reward system. Teacher pay scale should be determined by a number of factors (Eurydice, 2015):

• level of education sector (primary, secondary, tertiary education);

• teachers' recruitment and retention policy.

Payment systems are a central element in human resource management and concern the efficient use of human resources (Omebe, 2014). In education were used following payment systems: payroll based on time worked (for the basic payment) and remuneration in direct agreement (for work paid by hour).

Compensation package should be determined according to several criteria: level of experience, competence and qualifications of the employee's, performance, job responsibilities (Odden and Kelly, 2008). The first element of the remuneration package is basic salary. This is the central component of the reward system. In the salary package can be included private health insurance, voluntary pensions, food vouchers, gift vouchers and childcare vouchers (Eurydice, 2012).

Besides salary, reward includes a series of actions relating to non-financial motivation, such as: providing an environment for the enhancement of well done work (encouragement from superiors, diplomas, and medals for specific activities); careers end in an amicable manner; organizing intra-organizational competition between individuals and groups; removal of bureaucratic barriers and those related to working conditions (Badescu et al., 2011).

Also in Romania there is a unified salary structure in the education sector where wages are adjusted in relations with other domains of the public sector. In Romania, according to Law 1/2011, the teachers' salaries from state schools are based on job performance. Wage income of directors and deputy directors, and remuneration of teachers in private schools are established through negotiation between management and employee, being endorsed by the board of school unit (Chelaru, 2011).

For teachers and auxiliary staff from education sector, the base salary is determined on educational, didactic grade tranches, seniority scales, respectively based on the professional degree/level and gradation corresponding to the length of service for auxiliary staff of the institution, with all the elements that are part of the basic salary.

In each education institution, assessment of the staff is conduct annually. The evaluation results underpin the Board's decision on granting annual qualifier and the merit gradation. Teachers receive merit gradation awarded through open competition. This gradation is granted for 16 % of the existing teaching positions and it represents 25 % of basic salary. Merit gradation is awarded for a period of 5 years (Law 1/2011).

4. Analysis of wage trends in the education sector in Romania

Education is one of the strategic sectors of any economy. Education provides training qualified human resources needed in an economy that wants to be competitive. Therefore, a motivated and qualified teaching staff and dedicated to profession is essential to achieve this goal. Also in Romania, education is considered strategic area within public policies, but this goal was not always translated into wage policies to determine attracting and retaining the best human resources in the system.

Analyzing the net average wage in the education sector in Romania during 2004-2015 (Figure 1) we found that it has experienced sustained increases in economic growth periods: 2004-2009 and 2012-2015 (INS, 2016). In particular, in 2004-2009 this trend was fulminating (246,2%). However we must take into account that during this period inflation was significant: 155,1% being consumer price index calculated cumulatively for the period (INS, 2016).
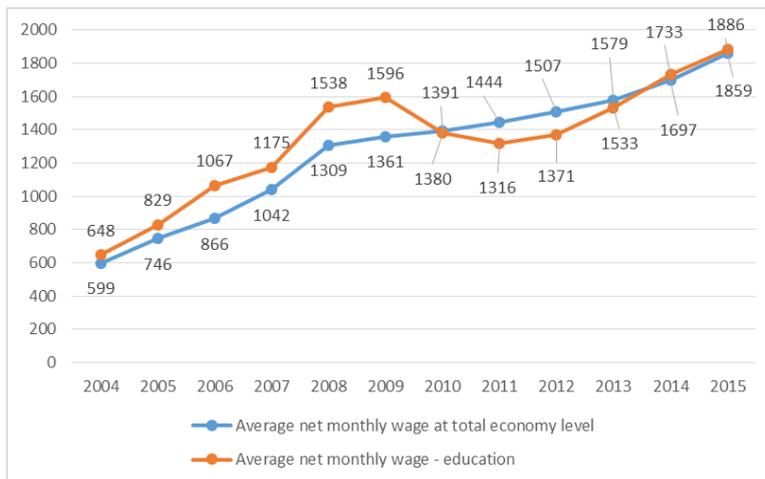

Figure 1. Monthly average net wage at overall economy level and education sector, expressed in lei

Source: data retrieved from INS, 2016

Period 2012-2015 showed a moderate increase in net average earning in education (137,5 %), given an inflation of 107.9 % (INS, 2016).

Comparing the level of average net earnings at the education level with the total economy level it can be seen that in times of economic growth net wages in education were over the net wages in the total economy (Figure 1). Only during several years of economic crisis and economic recovery, (2010-2013) average net earnings in education were below those if the total economy. This fall below the national average can be explained by wage cuts in the public sector.

Besides net average earning trends, at both education and total economy level is recorded different evolutions depending on the form of ownership of the employing institution. In Figure 2 we made a comparison of the earnings on the two forms of ownership (public and private) both at the total economy and education sector level (INS, 2016).
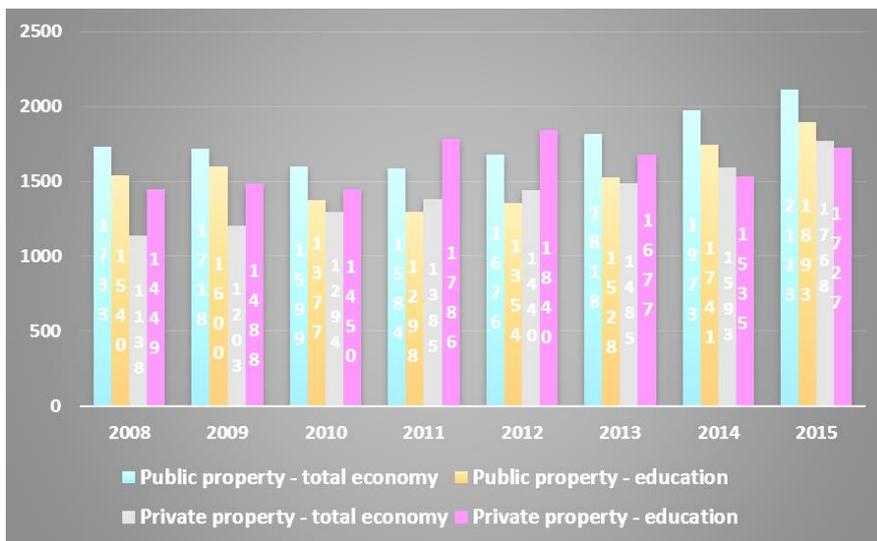
**Figure 2. Monthly average net earnings at the total economy level
and education sector, by ownership, expressed in lei**
Source: data retrieved from INS, 2016

A first observation relates to the adverse evolution of net average earning in the private and public economy. If during the crisis average net wage fell in the public sector, at the private sector level was average net wage maintained and even increased. This is due, most likely various financial benefits enjoyed by teachers in public.

As a result of H1 hypothesis research for period 2004-2015, we concluded that the average wage in education is higher than the average wage at national level. However, during crisis (2010-2013) the average wage at national level exceeded the average wage in education. This is explained by the fact that wages in the Romanian educational sector are mostly paid by the public institutions, and in this period of the economic crisis occurred drastic wage cuts. During the same period, net wages in the economy registered a slight growth, which they raised above the salaries of the Romanian education sector. Consequently, the hypothesis is partially validated. Usually wages in the Romanian education sector are above average wage for overall economy, but political and administrative interventions that education cannot be given the importance it deserves.

In general, at the total economy level, it occurs differentiation in wage level between men and women. The same differentiation occurs in the Romanian education sector (INS, 2016). In Figure 3, it can see that there are significant differences between net average earnings received by female teachers and male teachers. This evolution is driven by male staff that usually holds leadership positions making their salaries to be higher.
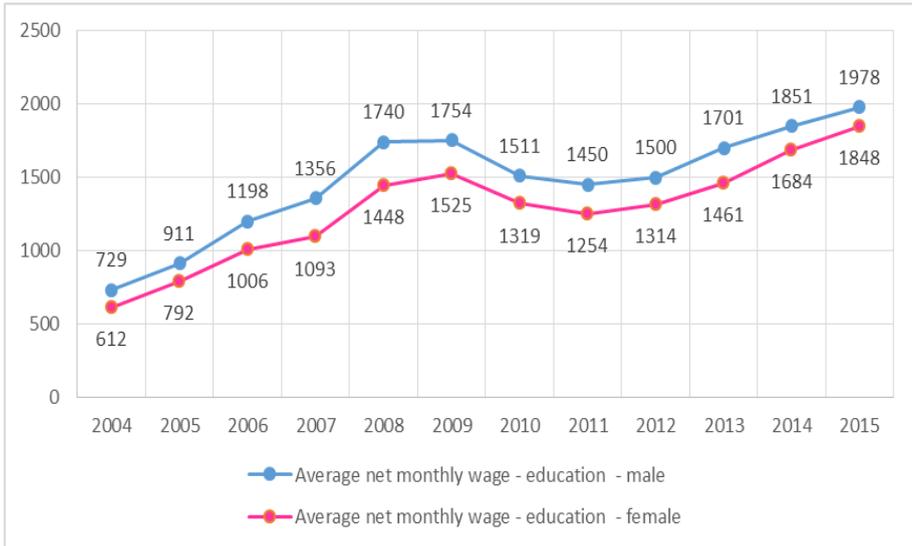
**Figure 3. Monthly average net earnings at the sector education level,
by gender, expressed in lei**
Source: data retrieved from INS, 2016

However, the differences between net earnings obtained by the two sexes tend to decrease both at the total economy level and education sector (INS, 2016). This trend indicates an attenuation of these differences, the trend showing that in a few years these revenues will equalize.
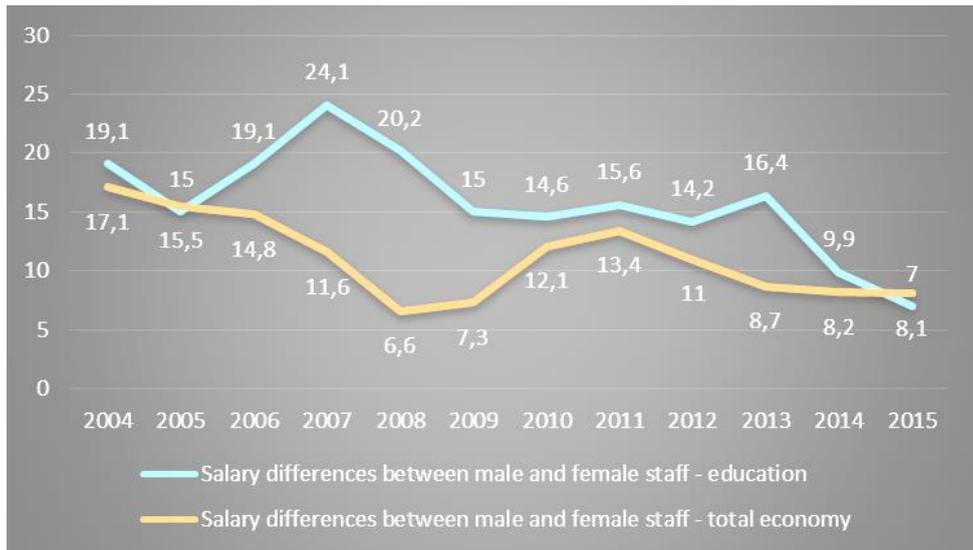

**Figure 4. Wage differences between male and female staff, at total economy
level and education sector, expressed as a percentage**
Source: Own calculations based on data provided by INS, 2016

As a result of H2 hypothesis research for period 2004-2015 we concluded that there are differences in the educational sector wage depending on the form of ownership of the employing institution and gender. The hypothesis is total validated. Depending on the form of ownership of the employing institution, it can see that wages in the public sector are higher than wages in the private sector most likely due to the different financial benefits enjoyed by teachers in public sector. As in other economies or at the entire Romanian economy level, there is difference between average net wages female staff and male staff in the education sector.

To determine the relationship among monthly average net earnings from the education sector and other economic indicators we have accomplished a number of correlations, taking into account the Gross Domestic Product, Gross Domestic Product per capita, changes in staff and monthly average net earnings in the total economy (table 1). It can observe strong correlations between indicators expressing GDP and indicators illustrating earnings at both total economy and sector education level. It can be seen therefore that earnings closely follow labor productivity levels. An interesting correlation (inverse of this time) is observed between the trend of staff and other economic indicators. This is explained by the continued decline in the number of people in the education sector amid restructuring due to economic problems but also to the dramatic demographic declines recorded by Romania.

Table 1

Correlations between monthly average net earnings and other economic variables

		GDP - production method current prices - ESA 2010	Gross domestic product per capita, ESA 2010, current prices	Teaching staff - number of people	Monthly average net earnings - total economy	Monthly average net earnings - education
GDP - production method current prices - ESA 2010	Pearson Correlation	1	1,000	-0,919	0,997	0,936
	Sig. (2-tailed)		0,000	0,000	0,000	0,000
	N	12	12	12	12	12
Gross domestic product per capita, ESA 2010, current prices	Pearson Correlation	1,000	1	-0,925	0,997	0,931
	Sig. (2-tailed)	0,000		0,000	0,000	0,000
	N	12	12	12	12	12

Teaching staff - number of people	Pearson Correlation	-0,919	-0,925	1	-0,920	-0,756
	Sig. (2-tailed)	0,000	0,000		0,000	0,004
	N	12	12	12	12	12
Monthly average net earnings - total economy	Pearson Correlation	0,997	0,997	-0,920	1	0,946
	Sig. (2-tailed)	0,000	0,000	0,000		0,000
	N	12	12	12	12	12
Monthly average net earnings - education	Pearson Correlation	0,936	0,931	-0,756	0,946	1
	Sig. (2-tailed)	0,000	0,000	0,004	0,000	
	N	12	12	12	12	12

Source: Own calculations based on data provided by INS, 2016

Trends of these indicators can be seen in table 2, in which we calculated the cumulative increase in these indicators for 2004 -2015, taking 2004 as base year.

Table 2
Cumulative trends of GDP, the teaching staff and the monthly net average earning, expressed in percent

	GDP - production method current prices - ESA 2010	Gross domestic product per capita, ESA 2010, current prices	Teaching staff - number of people	Monthly average net earnings - total economy	Monthly average net earnings - education
2004	100,0	100,0	100,0	100,0	100,0
2005	116,8	117,5	98,3	124,5	127,9
2006	139,5	141,2	97,0	144,6	164,7
2007	168,1	172,7	96,8	174,0	181,3
2008	210,8	220,2	96,3	218,5	237,3
2009	205,2	216,2	94,0	227,2	246,3

2010	214,6	227,4	88,5	232,2	213,0
2011	227,2	241,9	86,6	241,1	203,1
2012	239,3	256,0	85,8	251,6	211,6
2013	256,3	275,1	86,8	263,6	236,6
2014	268,6	289,1	85,5	283,3	267,4
2015	286,6	309,4	83,1	310,4	291,0

Source: Own calculations based on data provided by INS, 2016

Although correlations between these indices are very close it can be seen that the increase in average net salary levels (both at the total economy and education sector level) is above GDP and GDP per capita growth. This phenomenon is explained by lower employment which constitutes the basis for calculating the average net wage and productivity levels increased in the Romanian economy.

As a result of H3 hypothesis research for period 2004-2015 we have concluded that wage in education correlates closely and directly to GDP trends and inversely with trends of employees in education. Consequently, third hypothesis H3 is validated.

Considering the strong correlation between GDP - the production method, current prices, gross domestic product per capita, ESA 2010, current prices, monthly average net earnings at level of the total economy and monthly average net earnings at level of education sector we built a predictive model ARIMA (0, 1, 0) with stationary R-squared 0,859 for monthly average net earnings at level of education sector where monthly average net earnings at level of the total economy and monthly average net earnings at level of education sector are dependent variables while GDP, GDP per capita and monthly average gross an net earnings at level of the total economy are the independent variable. For historical data (2004-2015) we used TEMPO databases of I.N.S.S.E. (INS, 2016) and the forecasts from National Prognosis Commission (CNP, 2016).

Table 3

Predictions on monthly net average earnings

		GDP - production method current prices - ESA 2010	Gross domestic product per capita, ESA 2010, current prices	Monthly average gross earnings - total economy (lei)	Monthly average net earnings - total economy (lei)	Monthly average net earnings - education (lei)	Lower confident limits (lei)	Upper confident limits (lei)
Historical	2004	248747,6	11595,6	818	599	648	-	-
	2005	290488,8	13625,4	968	746	829	-	-
	2006	347004,3	16373,0	1146	866	1067	-	-
	2007	418257,9	20028,7	1396	1042	1175	1086	1435

	2008	524388,7	25532,8	1761	1309	1538	1298	1647
	2009	510522,8	25065,6	1845	1361	1596	1448	1797
	2010	533881,1	26368,7	1902	1391	1380	1318	1667
	2011	565097,2	28047,8	1980	1444	1316	1117	1465
	2012	595367,3	29679,1	2063	1507	1371	1208	1557
	2013	637456,0	31895,4	2163	1579	1533	1414	1763
	2014	668143,6	33524,4	2328	1697	1733	1567	1915
	2015	712832,3	35873,6	2555	1859	1886	1671	2020
Predictions	**2016**	**758500,0**	**38487,0**	**2815**	**2407**	**1925**	**1750**	**2099**
	2017	**807400,0**	**41199,0**	**2996**	**2176**	**1978**	**1731**	**2224**
	2018	**861600,0**	**44211,0**	**3163**	**2295**	**2112**	**1810**	**2414**
	2019	**919600,0**	**47443,0**	**3331**	**2415**	**2315**	**1966**	**2664**
	2020	**977200,0**	**50689,0**	**3505**	**2538**	**2516**	**2126**	**2906**

Source: Own calculations based on data provided by INS, 2016; CNP, 2016

Based on the model results for the period 2016-2020 we forecast an increase in monthly net average earnings at the education sector level of 133.4%. Such a pace is only possible while maintaining economic growth and the growth rate of labor productivity.

5. Conclusions

Human resource management in education is of particular importance. This is because staff education is the main tool to achieve educational goals and, consequently, national development. Without an adequate, qualified, well-motivated labor force, operating within an effective program management of human resources, development is not possible.

In this paper we conducted a quantitative research to analyze and interpret the evolution of wages in Romanian education and to study potential correlations among these levels and a series of macroeconomic indicators. The research found that the wages in education were higher than wages at total economy level in the period 2004-2015, except for the period 2010-2013 when there were drastic wage cuts across the whole public sector. Another highlight show that in education sector salary differences depend on the form of ownership of the employing institution and gender. Earnings in the public sector are higher than those in the private sector due most likely to bonuses and various financial benefits enjoyed by teachers from public sector. Also there are differences between the average net wage of female and male staff.

Our research of wages levels in education has allowed us to see that wages in education correlates closely and directly to GDP trends and inversely with trends of employees in education. Considering the strong correlation between GDP and monthly average net earnings levels in education sector we built a predictive model where the monthly average net earnings levels in education sector is dependent variable while GDP is independent variable. Based on the model results for the

period 2016-2020 we forecast an increase in monthly average net earnings levels in education sector of 133.4%, which would maintain the level of education above monthly average net earnings in the total economy. However the importance of the profession and the need to attract the best and qualified human resources factors should persuade policymakers to pay a higher percentage of GDP on wage costs, to increase motivation in this important area of national economy.

The overall conclusion that emerges from empirical research and observations overview of the education system is that in order to improve student achievement, schools need a strong and ambitious strategy that target motivational process improvement.

Over time, the education sector have experienced a traditional systems of pay in which wage growth was achieved automatically by level of education, seniority, grade or function. It is necessary to change the paradigm on wages, gradually introducing a system allowing teachers reward based not only on time worked but also based on the quality of their work (which translates into better school results). Introducing of performance-based components in salary package (such as merit gradations in Romania) is a solution, but it is necessary that performance rewarding and the quality of educational act to be a fundamental principle of pay system.

In our view, a pay system ensure performance in the education sector if it meets the following requirements:

- to be discussed with the teachers and to obtain their consent and commitment for such a system;
- to be introduced gradually to prevent resistance;
- aiming an overall long-term objective;
- there are sufficient funds to apply such a system;
- establishing clear targets and standards for teachers;
- teachers are very familiar with standards and targets imposed.

At the public sector level a unitary wage structure should be introduced for all teachers in all levels of education to ensure a fair and predictable rewarding permitting a decent life, satisfaction of personal and professional development need, and to make the teaching profession a profession desired by the best and most qualified human resources in the overall economy. Romania will implement a unitary wage structure across the whole budgetary sector. Future research will focus on wage trends in the education sector in the context of the new salary legislation.

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